

**Notice of Allowability**

Application No.

10/760,489

Examiner

Cassandra Cox

Applicant(s)

ITO ET AL.

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to response filed on 05/03/05.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ The drawings filed on 21 January 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 01/21/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

TIMOTHY P. CALLAHAN  
SUPERVISORY PATENT EXAMINER

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

1. This application is in condition for allowance except for the presence of claims 10-13 to an invention non-elected without traverse. Accordingly, claims 10-13 have been cancelled.

#### ***Allowable Subject Matter***

2. Claims 1-11 are allowed.

3. The following is an examiner's statement of reasons for allowance: Claims 1-4 are allowed because the closest prior art of record fails to disclose a circuit as shown in Figure 1 wherein the circuit includes a sampling signal generation circuit (20) for acquiring a variation point of the PWM driving signal from a first level to a second level, wherein the variation point defines a period start point, wherein the variation point is acquired based on a condition that delay time  $t_d$  is shorter than at least a minimum duration of the second level of the PWM driving signal, wherein the delay time  $t_d$  is defined as time from variation of level of the PWM driving signal to actual variation in the passage of current through the driven section, and for providing the analog voltage processing section with a sampling signal at a predetermined point in time when the delay time  $t_d$  elapses from the period start point of the PWM driving signal in combination with the rest of the limitations of the base claims and any intervening claims. Claims 5-9 are allowed because the closest prior art of record fails to disclose a

circuit as shown in Figure 1 wherein the circuit includes a sampling signal generation circuit (20) for setting reference time  $t_s$  in advance so as to satisfy the following equation: delay time  $t_d < \text{reference time } t_s \leq (\text{period of PWM driving signal delay time } t_d)$  wherein the delay time  $t_d$  is defined as time from variation of level of the PWM driving signal to actual variation in the passage of current through the driven section, wherein the sampling signal generation circuit (20) acquires a variation point of the PWM driving signal from a first level to a second level, the variation point defining a period start point, and also acquires a time width of the second level at the period, wherein when the reference time  $t_s$  is longer than the duration of the second level, the sampling signal generation circuit (20) provides the analog voltage processing section (12) with a sampling signal at a point in time when "the reference time  $t_s$  + the delay time  $t_d$ " elapses from the period start point of the PWM driving signal, and wherein when the reference time  $t_s$  is shorter than the duration of the second level, the sampling signal generation circuit (20) provides the analog voltage processing section (12) with the sampling signal at a point in time when the reference time  $t_s$  elapses from the period start point in combination with the rest of the limitations of the base claims and any intervening claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cassandra Cox whose telephone number is 571-272-1741. The examiner can normally be reached on Monday-Thursday from 7:00 AM to 4:30 PM and on alternate Fridays from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 27, 2005

CC

A handwritten signature, possibly reading 'CC', is written below the printed 'CC'.